



## Teacher's Perception of Learning Tools through Realistic Mathematics Education with Islamic Context on Social Arithmetic Materials

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**Abstract:** This study aims to determine the teacher's perception of learning tools through realistic mathematics education with an Islamic context on social arithmetic material. This research uses descriptive-analytical research with a qualitative approach. The research subjects were two mathematics teachers at MTsS Darul Hikmah in West Aceh, two mathematics teachers at MTsS Safinatun Naja in Nagan Raya, and three mathematics teachers at MAS Darul Hikmah in West Aceh. The data collection technique used an open questionnaire instrument. The data analysis technique uses the Miles and Huberman model which consists of data reduction, data presentation, and conclusion. The results showed that seven teachers (100%) had never participated in using learning tools through realistic mathematics education with an Islamic context on social arithmetic material, five (71%) of the seven teachers were interested in using the learning tools, six (86%) of the seven teachers interested and agree with the learning tools in question, and seven teachers (100%) are willing and express their willingness to use the learning tools in question to students optimally. Based on the findings above, it can be concluded that the majority of teachers stated that the learning tools needed to be developed to support the vision and mission of the school. So, teachers and students need learning tools through realistic mathematics education in an Islamic context that leads students to understand social arithmetic based on the realities of everyday life that are integrated with Islamic values.

**Abstrak:** Penelitian ini bertujuan untuk mengetahui persepsi guru terhadap perangkat pembelajaran matematika realistik dengan konteks keislaman pada materi aritmetika sosial. Penelitian ini menggunakan jenis penelitian deskriptif analisis dengan pendekatan kualitatif. Subjek penelitian adalah dua orang guru matematika MTsS Darul Hikmah Aceh Barat, dua orang guru matematika MTsS Safinatun Naja Nagan Raya dan tiga orang guru matematika MAS Darul Hikmah Aceh Barat. Teknik pengumpulan data menggunakan instrument angket terbuka. Teknik analisis data menggunakan model Miles dan Huberman yang terdiri dari reduksi data, penyajian data dan penarikan kesimpulan. Hasil penelitian menunjukkan bahwa tujuh orang guru (100%) belum pernah berpartisipasi menggunakan perangkat pembelajaran matematika realistik dengan konteks keislaman pada materi aritmetika sosial, lima (71%) dari tujuh guru berminat jika menggunakan perangkat pembelajaran dimaksud, enam (86%) dari tujuh guru tertarik dan setuju dengan perangkat pembelajaran dimaksud, dan tujuh orang guru (100%) bersedia dan menyatakan kemauannya menggunakan perangkat pembelajaran dimaksud kepada peserta didik secara optimal. Berdasarkan temuan di atas dapat disimpulkan bahwa mayoritas guru menyatakan bahwa perangkat pembelajaran tersebut sangat dibutuhkan untuk dikembangkan guna mendukung visi dan misi madrasah. Dengan demikian, guru dan peserta didik memerlukan perangkat pembelajaran matematika realistik dengan konteks keislaman yang menuntun peserta didik untuk memahami aritmetika sosial berdasarkan realitas kehidupan sehari-hari yang terintegrasi dengan nilai-nilai keislaman.

## A. Introduction

Education plays an important role in the journey of human life. Humans can grow and develop well through good quality education (Silviani et al., 2018). Education is a series of activities that have specific goals that are directed at developing all the potential of humans effectively and comprehensively both as servants of God and as a social community because education continues to experience rapid development from time to time (Ama, 2012). Education is also part of a natural process that is needed by a person or group to get balance and perfection in the development of their character (Kosilah, 2020).

Mathematics as an object of education is no less important in the development of attitudes and knowledge of students. Mathematics learning can be studied through various contextual approaches that are close to students. This can be applied in the form of activating student activities through real problems in everyday life (Johar et al., 2021). Thus, learning outcomes are expected to be more meaningful for students; The learning process takes place naturally, students come to work and "become players" not just a transfer of knowledge from teachers to students (Yuberti., 2014).

Mathematics is one of the subjects that can train students to think critically and realistically (Yusmanita et al., 2018). The principle of learning mathematics that tends to be critical and realistic is guided to shape the character of students who are of high quality and have noble character; not only focused on academic aspects alone. In the current context, moral education that is oriented to nobility is very important to be developed through the concept of integrated mathematics learning (Johar et al., 2021). This can be done by combining mathematics with Islamic values (mixed approach) using the realities of everyday life because it is allegedly able to increase the competence of students' faith and piety to God Almighty as stated in Basic Competence (KD) 1 in mathematics curriculum (Kurniati, 2016).

Among the approaches to learning mathematics that relate to the realities of everyday life is Realistic Mathematics Education (RME). RME is a new approach to mathematics education. This approach was developed based on the assumption that mathematics is a series of human activities (Zubainur, 2015; Rahman, 2018; Rahman & Hasmanidar, 2019). According to RME, mathematics class is not a place to transfer mathematical concepts or theories from teachers to students, but rather a medium for students to find mathematical ideas and concepts by exploring a series of real problems (Munir, 2020).

The fact shows that in general mathematics learning is still one-sided and seems very conservative (Johar et al., 2021). The concept of learning mathematics is usually still done partially and has not been fully integrated with other disciplines, especially with the science of Islam (Wulandari, 2020). As a result of partial learning, mathematics learning becomes rigid and does not seem inclusive (Utami, 2017).

In addition, learning tools through realistic mathematics education in an Islamic context are still very limited, especially those related to social arithmetic material. This is based on observations made by researchers from November 22 to 24, 2021 at Madrasah

Tsanawiyah Swasta (MTsS) Darul Hikmah Aceh Barat, MTsS Safinatun Naja Nagan Raya, and Madrasah Aliyah Swasta (MAS) Darul Hikmah Aceh Barat. The preparation of learning tools is only listed without considering the characteristics of educational institutions, students, teachers, infrastructure, and socio-cultural. This reality causes the learning objectives to be unable to reach the target, but tend to "walk in place" (Wahyu, 2014).

As a result, the learning tools that have been prepared by teachers have not been fully oriented to the needs in the field and are not by the characteristics and conditions of students. The material presented tends to be oriented toward the memorization ability of students. This makes it difficult for students to understand the material theoretically and practically. In addition, this material is also not fully integrated with the context of everyday life so it seems difficult and difficult to understand. This condition is exacerbated by conventional methods which become the "prima donna" of teachers when transferring students' conceptual understanding in completing assignments. While the teacher only provides a few opportunities for students to provide opinions on the completion of lesson assignments (Sari & Anwar, 2019).

Therefore, it is necessary to have a mathematics learning device with an Islamic context as a reference in the learning process that allows teachers and students to carry out a series of learning activities systematically. The preparation of learning tools begins with careful planning by analyzing data and identifying problems comprehensively so that they become the main guide for teachers in carrying out the learning process (Zuhdan, 2011).

The material discussed in this study is social arithmetic. The scope of the material covered includes sales, purchases, gains, losses, and percentages. In the context of everyday life, this material is often associated with economic issues. Thus, the integration of social arithmetic with the Islamic context, especially zakat in a learning tool is considered very relevant because they both discuss economic issues and activities that are very close to everyday life, especially with percentage material. This is because zakat and percentage are both oriented to the process of calculating the ratio of a certain amount.

Meanwhile, several Indonesian researchers researched the development of learning tools through realistic mathematics education, as in Supriatna's (2019) research. The results of the study were the development of student worksheets was declared feasible to be used to improve the character of discipline because the validity score was 87.28%, the language was 68.57%, and the level of convenience was 86.11%. However, the development of learning tools through realistic mathematics education with an Islamic context on social arithmetic material is still very limited and almost non-existent, especially on zakat. This study tries to present mathematics using the context of zakat so that students can understand how to learn mathematics from an Islamic perspective. Thus, learning this model will lead students to an integrated understanding of mathematics as well as zakat. As the saying goes "while diving drinking water". This means that while learning mathematics, students can also study zakat simultaneously. At its peak, the learning of mathematics learned will be recorded as part of worship and able to protect students from the "trap" of secularism. Based on the above background, the objectives of this study are 1)

to find out the needs of teachers and students for learning tools through realistic mathematics education with an Islamic context on social arithmetic material, and 2) to find out what students' social arithmetic abilities are.

## B. Method

This research is descriptive analysis research using a qualitative approach. A qualitative approach is carried out to explore, understand, and descriptively describe an object of research in the form of words and language (Basar, 2021). The research population is all mathematics teachers in religious schools in Aceh Barat and Nagan Raya districts. While the research samples were mathematics teachers at MTsS Darul Hikmah from Aceh Barat, MTsS Safinatun Naja from Nagan Raya and MAS Darul Hikmah from Aceh Barat totaling seven people, two teachers from MTsS Darul Hikmah, two teachers from MTsS Safinatun Naja and the other three were from MAS Darul Hikmah. The data collection technique was carried out using an open questionnaire. The research questionnaire was modified from the research of Riska, Zubainur, and Munzir. Questionnaires were used to find out the teacher's views on learning tools, learning tools facilities in schools, difficulties faced by teachers in learning mathematics, and character education applied by teachers. Questionnaire indicators are teacher participation, interest, approval, and willingness to the availability of learning tools through realistic mathematics education with an Islamic context on social arithmetic material.

The following table lists a questionnaire to identify the teacher's need for the availability of learning tools through realistic mathematics education with an Islamic context on social arithmetic material.

**Table 1.**  
Research Questionnaire List

Item	Indicator	Question
1	Participation	Have you ever used learning tools through the RME approach with an Islamic context on social arithmetic material? Include reasons if yes/no!
2	Interest	Are you interested in learning tools through the RME approach with an Islamic context on social arithmetic material? Why?
3	Approval	Do you agree if you provide learning tools through the RME approach with an Islamic context on social arithmetic material? Why?
4	Willingness	Are you willing to use learning tools through the RME approach with an Islamic context on social arithmetic material during the learning process? Include a reason!

The list of open questionnaires in Table 1 consists of four questions containing the participation, interest, approval, and willingness of teachers toward learning tools through the RME approach with an Islamic context on social arithmetic material to be developed.

The data analysis technique uses the Miles and Huberman model. This data analysis model consists of reducing data, presenting data, and drawing conclusions. Questionnaire data were analyzed descriptively to get an overview of the needs of learning tools.

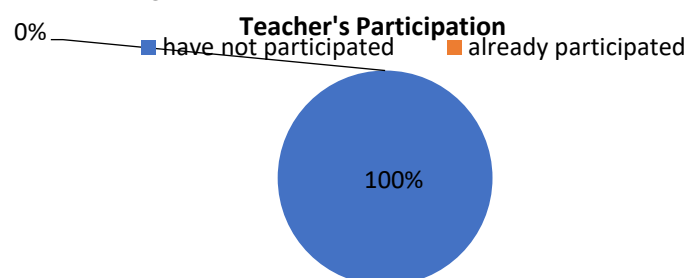
### C. Result and Discussion

Learning tools through realistic mathematics education with an Islamic context on social arithmetic material are mathematics learning tools based on the 2013 Curriculum which will be developed using Islamic contexts on social arithmetic materials for class VII MTs. The learning tools to be developed consist of learning trajectories, lesson plans, student worksheets, teaching materials, and tests. These five learning tools will be developed referring to the Basic Competencies (KD) of social arithmetic material and meet the valid, practical, and effective criteria so that they are categorized as good-quality learning tools. This learning tool is designed to guide students to easily understand the material presented and to encourage them to be actively involved in completing social arithmetic material tasks based on Islamic values in the context of zakat. This is in line with the findings of Gunamantha (2019) that learning mathematics using certain contexts can significantly improve student learning achievement.

The learning design of this model begins first by posing problems to students about real life through symbols of zakat, then students continue by exploring the concepts that must be mastered by themselves then students are encouraged to ask questions and argue through guided dialogue, guide investigative abilities and carry out activities. other scientific. Then the teacher explains the definitions and formulas of social arithmetic that are integrated with Islamic teachings about zakat in detail and comprehensively.

Before this learning device was designed, the researcher conducted a needs analysis in advance to find out the problems faced by the teacher in the learning process and the extent to which the learning tools to be developed were needed. To identify teachers' needs for the availability of learning tools through realistic mathematics education with an Islamic context on social arithmetic material, the authors use an open questionnaire analysis of seven mathematics teachers using the following four indicators: participation, interest, approval, and willingness.

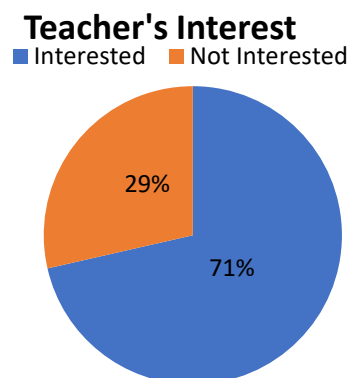
The results of the analysis of teachers' participation in the availability of learning tools through realistic mathematics education with an Islamic context on social arithmetic material are presented in Fig 1.



**Fig 1.** Teacher's Participation

Based on Graph 1 above, shows that seven teachers (100%) have never used learning tools through realistic mathematics education in an Islamic context. None of the teachers (0%) have used these learning tools. They only tend to use conventional mathematics learning tools without using real problems and have not been integrated with Islamic values. Mathematics learning tools made by teachers seem perfunctory and are arranged only to complete teacher documents to meet certain administrative requirements, for example for teacher certification documents, supervision and others. The preparation of learning tools is very dependent on duplicates obtained from other teachers or simply copying and paste from the internet and then listening without considering the characteristics of educational institutions, students, teaching staff, infrastructure, and socio-cultural students. This is by the findings of Wulandari (2020) that in general mathematics learning tools have not been integrated with other disciplines, especially with the science of Islam. This causes students to find it difficult to understand learning material in real terms and not know how relevant it is to Islam as the religion they follow. This is by the results of research by Malacoppo (2021) which states that learning tools that are integrated with Islam can improve students' understanding well.

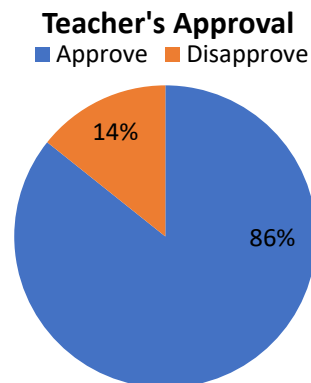
The results of the analysis of teacher interest in the availability of learning tools through realistic mathematics education with an Islamic context on social arithmetic material are presented in Fig 2.



**Fig 2.** Teacher's Interest

Based on Fig 2 above, shows that five teachers (71%) expressed interest in developing learning tools through realistic mathematics education in an Islamic context. The teachers stated that using the mathematics learning tools in question would help students to understand social arithmetic material with daily contexts based on Islamic values and could increase interest in learning. This is by Tanjung (2017)'s findings that learning that combines media with Islamic elements makes students more interested in participating in the mathematics learning process. However, there were two teachers (29%) who stated that they were not interested in compiling the learning tools due to limited knowledge, references, and fear of making mistakes. In general, the use of learning tools through realistic mathematics education with an Islamic context on social arithmetic material to students received a positive response from the teachers.

The results of the analysis of teachers' approval of the availability of learning tools through realistic mathematics education with an Islamic context on social arithmetic material are presented in Fig 3.



**Fig 3.** Teacher's Approval

Based on Fig 3 above, shows that six teachers (86%) agreed with the use of learning tools through realistic mathematics education with an Islamic context on social arithmetic material because they were interesting and contextual in daily life. In addition, students gain dual knowledge, namely learning mathematics as well as learning Islam so that it can increase students' interest in working on problem-solving problems. This is in line with the findings of Suhandri (2019) that learning with an Islamic approach helps improve students' problem-solving abilities. However, there is one teacher who does not agree because according to him students at the MTs level have not been able to understand mathematics learning in the context of zakat comprehensively.

Another finding also states that teachers have long wanted and hoped for the availability of learning tools with a realistic mathematical approach in an Islamic context. However, due to limited knowledge, references and time, so far it has not been able to be provided. The presence of this learning device in an Islamic context is "bak pucuk dicinta ulanpun tiba". This long wait was finally answered with a discourse on the development of learning tools intended to improve students' mathematical abilities that are integrated with Islamic values. This is by the results of Fariha's research (2019) which states that learning tools through realistic mathematics education with an Islamic context can be applied in the mathematics learning process to students and they are also able to solve problem-solving problems creatively, critically, well, and independently.

The results of the analysis of the teacher's willingness to use learning tools through realistic mathematics education with an Islamic context on social arithmetic material are presented in Fig 4 below.

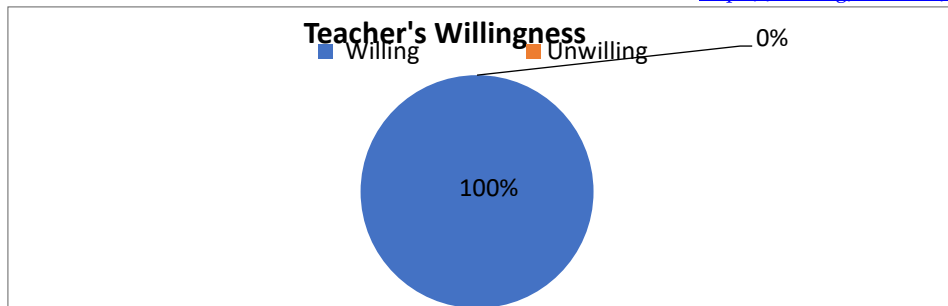


Fig 4. Teacher's Willingness

Based on Fig 4 above, shows that seven teachers (100%) agreed and were willing to use learning tools through realistic mathematics education with an Islamic context on social arithmetic material to students. If given learning tools in this Islamic context, they stated that they would try to understand and apply them in the classroom optimally and seriously. This is so that they can achieve a comprehensive quality of education, not only capable academically but also socially and spiritually superior, and get an impression full of meaning during the learning process. Thus, students will be able to connect mathematical theory with the reality of everyday life to avoid the partial paradigm that leads them to the "abyss" of secularism. This is by the statement of Johar, Zubainur, Khairunnisak, and Zubaidah (2021) that the use of contextual problems in learning mathematics can make learning memorable and meaningful.

The results of the teacher's perception questionnaire as a whole are presented in Fig 5 as follows.

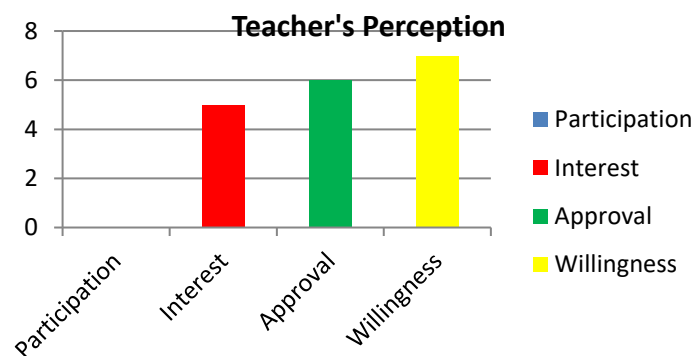


Fig 5. Teacher's Perception

Fig 5 above shows that seven teachers (100%) have never participated in using learning tools through realistic mathematics education with an Islamic context on social arithmetic material, five (71%) of the seven teachers are interested in using the learning tools, six (86%) of seven teachers are interested and agree with the learning tools in question, and seven teachers (100%) are willing and express their willingness to use the learning tools in question to students optimally and with dedication. Based on the findings above, it can be understood that the majority of teachers stated that learning tools through realistic

mathematics education with an Islamic context on social arithmetic material were needed to be developed to support the school's vision and mission.

Therefore, learning tools through realistic mathematics education are needed in an Islamic context on social arithmetic material based on social constructivism. In the opinion of Vygotsky (Deviana, 2019) developing social constructivism which has the understanding that the concept of learning for students is carried out in the format of interaction with the social environment close to them. Discoveries in learning are easier to obtain in the context of everyday life. With direct experience gained by students, students will build their understanding in their way.

The learning model with this format is known as the RME approach. RME connects the informal knowledge of mathematics that students acquire from everyday life with formal mathematical concepts. RME has four basic principles, namely guide-reinvention, progressive mathematizing, didactical phenomenology, and self-developed model (Johar et al., 2021).

Minimum learning tools consist of learning trajectories, lesson plans, student worksheets, teaching materials, and tests. This learning tool will help the teacher to condition the class for the better and evaluate the extent of the overall ability of the students in achieving the learning objectives. The reason teachers do not have adequate learning tools is that there is not enough time to prepare them and there is no availability of learning tools with certain methods and approaches that the teacher can use directly and the teacher's inability to develop learning tools that suit the needs and conditions of everyday life. Thus, learning tools are needed that can help students and teachers in optimizing the learning process on social arithmetic material.

#### **D. Conclusion**

Based on the results of the study, it can be concluded that social arithmetic learning materials can be developed using RME-based learning. Each student has sufficient ability to participate in RME-based learning despite having diverse backgrounds. The ability to relate to the Islamic context has not been the main goal in the mathematics learning process. The results of the questionnaire analysis showed that the majority of teachers stated that learning tools through realistic mathematics education with an Islamic context on social arithmetic material were needed to be developed to support the vision and mission of the madrasa. However, teachers experience problems in developing learning tools with the RME approach. Therefore, PMRI-based learning tools with an Islamic context are needed that can help students improve their ability to understand social arithmetic material optimally and can interpret mathematics in everyday life, and be protected from secular understanding.

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